THE SYSTEM OF THE ENGLISH CHEMICAL SOCIETY.

The system of nomenclature and notation adopted by the English Chemical Society, which has already been referred to, is here reprinted in full.

NOMENCLATURE AND NOTATION.

The following instructions relating to these matters were addressed by the Council to the Abstractors in 1879*, and are now reprinted, with a few slight alterations, in the hope that they may have some influence in promoting uniformity of nomenclature and notation, especially in papers communicated to this journal.

By order of the Publication Committee,
H. WATTS, Editor.

NOMENCLATURE.

"1. Employ names such as *sodium*, *chloride*, *potassium*, *sulphate*, *ethyl acetate*, and use the terminals *ous* and *ic* only in distinguishing compounds of different orders derived from the same elementary radicles, *e. g.*, mercurous and mercuric chloride, sulphurous and sulphuric acid.

"2. Term compounds of metallic and alcohol radicles with (OH), *hydroxides* and not hydrates, *e. g.*, potassium hydroxide, phenyl hydroxide, the name hydrate being reserved for compounds supposed to contain water of combination or crystallization. Compounds such as CH_3ONa, C_2H_5ONa, $C_7H_{15}ONa$, etc., should be termed sodium methoxide, ethoxide, heptyoxide, &c.

"3. Apply the term *acid* only to compounds of hydrogen with negative radicles, such as HNO_3, H_2SO_4, H_3PO_4, and denote the oxides which form acids by names such as sulphuric anhydride or sulphur trioxide. Term salts containing an amount of metal equivalent to the displaceable hydrogen of the acid, *normal* and not neutral salts, and assign names, such as hydrogen-sodium sulphate, hydrogen-disodium phosphate, &c., to the acid salts. Basic salts are as a rule best designated merely by their *formulæ*.

"4. Use names such as methane, ethane, &c., for the normal paraffins or hydrocarbons of $C_n H_{2n+2}$ series of the form CH_3.

$(CH_2)_5.CH_3$. The isomeric hydrocarbons are usually most conveniently represented by names indicating their relation to methane: for example, $CH_3.CH_2.CH_2.CH_3$ = propylmethane ; $CH_3.CH(CH_3)_2$ = isopropylmethane or trimethylmethane ; or, although less frequently, by names such as diisopropyl.

"5. Term the hydrocarbons C_2H_4 and C_2H_2 *ethylene* and *acetylene* respectively (not ethene and ethine). Distinguish the homologues of ethylene, whenever possible, by names indicating their relation to it, such as methylethylene, dimethylethylene, etc., denoting the di-derivatives of the form $C_nH_{2n+1}.HC:CH.C_nH_{2n+2}$ as α-, and those of the form $CH_2:C(C_nH_{2n+1})_2$ as β compounds: thus, $CH_3.CH:CH.CH_3$ = α-dimethylethylene ; $CH_2:C(CH_3)_2$ = β-dimethylethylene. Similarly, we use names such as methylacetylene and dimethylacetylene for the homologues of acetylene of the form $CH\vdots C.C_nH_{2n+1}$ and $C_nH_{2n+1}C\vdots C.C_nH_{2n-1}$. Adopt the name *allene* for the hydrocarbon $CH_2:C:CH_2$, and indicate the relation which its homologues bear to it in the same manner as pointed out for acetylene.

"6. Distinguish all alcohols, *i. e.*, hydroxyl-derivatives of hydrocarbons, by names ending in *ol*, *e. g.*, quinol, catechol, resorcinol, saligenol, glycerol, erythrol, mannitol, instead of hydroquinone, pyrocatechine, resorcin, saligenin, glycerin, erythrite, mannite. Compounds which are not alcohols, but which are at present distinguished by names ending in *ol*, may be represented by names ending in *ole*, if a systematic name cannot be given. For example, write indole instead of indol; furfuraldehyde instead of furfurol; fucusaldehyde instead of fucusol. Ethers derived from phenols, such as $C_6H_5.OCH_3$, etc., hitherto called anisol, anethol, etc., may be distinguished by names ending in *oïl*, as anisoïl, anethoïl.

"Alcohols should be spoken of as mono, di, tri, or n *hydric*, according to the number of OH groups.

"7. Bodies such as the acids of the lactic series containing the group (OH) should be termed *hydroxy-*, and not oxyderivatives, *e. g.*, hydroxyacetic acid and not oxyacetic acid. Compounds containing the analogous groups C_2H_5O, C_6H_5O, $CH_3.COO$, &c., should in a like manner be termed exthoxy-, phenoxy-, acetoxy- derivatives. Thus ethoxypropionic acid instead of ethyllactic acid ; 3 : 4 diethoxybenzoic acid instead of diethylprotocatechuic acid ;

and acetoxypropionic acid instead of acetyllactic acid. Terms such as diethylprotocatechuic acid should be understood to mean a compound formed by the displacement of hydrogen atoms in the hydrocarbon radicle of protocatechuic acid by ethyl, viz., $C_6H(C_2H_5)_2(OH)_2.COOH$, and not $C_6H_3(OC_2H_5)_2.COOH$, just as dibromoprotocatechuic acid is understood to be the name of a compound of the formula $C_6HBr_2(OH)_2.COOH$.

"8. The term *ether* should be restricted to the oxides of hydrocarbon radicles, and the so-called compound ethers should be represented by names similar to those given to the analogously constituted metallic salts (comp. 12).

"9. Compounds of the radicle SO_3H should, whenever possible, be termed *sulphonic* acids, or, failing this, *sulpho-compounds:* as benzene-sulphonic acid, sulpho-benzoic acid, and not sulfi-compounds. Compounds of the radicle $SO_2.NH_2$ should be termed sulphonamides.

"10. Basic substances should invariably be indicated by names ending in *ine*, as aniline, instead of anilin, the termination *in* being restricted to certain neutral compounds, viz.: glycerides, glucosides, bitter principles and proteids, *e. g.*, palmitin, amygdolin, albumin. The compounds of basic substances with hydrogen chloride, bromide or iodide, should always receive names ending in *ide* and not *ate*, as morphine hydrochloride and not morphine hydrochlorate.

NOTATION.

"11. Equations, as a rule, should *not* be written on a separate line, but should run on with the text. Simple reactions, involving a mere interchange of radicles, or the withdrawal or addition of a particular element or group of elements, need not generally be expressed by equations.

"12. To economize space, it is desirable: 1. That *dots* should be used *instead of dashes* in connecting contiguous symbols or radicles, whenever this does not interfere with the clearness of the formula; 2. That formulæ should be shortened by judicious employment of the symbols Me for CH_3, Et for C_2H_5, Prα for $CH_2.CH_2.CH_3$, Prβ for $CH(CH_3)_2$, Ph for C_6H_5, $\overline{Ac}$ for $CO.CH_3$, and $\overline{Bz}$ for

$CO.C_6H_5$; and 3. That formulæ should be written *in one line* whenever this can be done without obscuring their meaning. For example :—

$CCl_3.CH(O\,Et)_2$ instead of $CCl_3—CH\langle^{OC_2H_5}_{OC_2H_5}$

$(CCl_3.CHOH)_2S$ instead of $\begin{matrix}CCl_3—CHOH\\CCl_3—CHOH\end{matrix}\rangle S$

$CH_2\,.\,CH_2$ instead of $CH_2{=}{=}CH_2$
$CH\vdots CH$ instead of $CH{=}{=}CH$

$CH\vdots C.CH_2.CH_2.C\vdots CH$ instead of $\begin{matrix}CH_2—C{=}{=}CH\\|\\CH_2—C{=}{=}CH\end{matrix}$

$MeCH:CHPr\alpha$ instead of $CH_3.CH{=}{=}CH.CH_2.CH_2.CH_3$.

$COOH.CH:CMe.COOH$ instead of $\begin{matrix}CH_3—C{=}{=}CH\\|\quad\quad|\\COOH\quad COOH\end{matrix}$

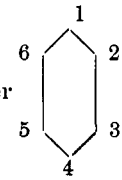
$CH_2Br.CBrMe_2$ instead of $\begin{matrix}CH_3CH_3\\\diagdown\diagup\\CBr\\|\\CH_2Br\end{matrix}$

Ac.CEt_2.COOEt instead of $\begin{matrix}CH_3\\|\\CO\\|\\C\langle^{C_2H_5}_{C_2H_5}\\|\\COOC_2H_5\end{matrix}$

$\begin{matrix}CH_2.CHMe\\CH_2.CHMe\end{matrix}\rangle O$ instead of $\begin{matrix}CH_2—CH.CH_3\\|\quad\quad\diagup\\O\\|\quad\quad\diagdown\\CH_2—CH.CH_3\end{matrix}$

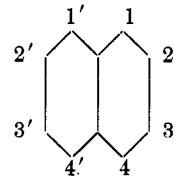
$C_6H_5.CH\,(O\,Bz).CH\,(O\overline{Bz}).COOEt$ instead of
$C_6H_5.CH\,(O.CO.C_6H_5).CH\,(O.CO.C_6H_5).COOC_2H_5$

"13. In representing the constitution of benzene derivatives, as a rule, merely indicate the relative positions of the radicles in the symbol of benzene by figures, instead of by means of the hexagon symbol, as in the following examples:

"Paradibromobenzenesulphonic acid, $C_6H_3Br_2.SO_3H$ [Br:SO_3H: Br=1:2:4] instead of  SO_3H, the figures always being used in the order  Relatively to the position 1, the positions 2 and 6 should always be spoken of as *ortho*-positions, 3 and 5 as *meta*-positions and 4 as the *para*-position. It is better, however, in speaking of the positions of benzene, to express their constitution by giving them names such as 1:2 dibromobenzene, 13: dibromobenzene, etc., rather than by terming them ortho- or meta-dibromobenzene, etc.

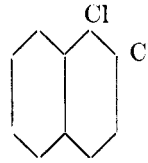
"14. In representing the constitution of other 'closed chain' hydrocarbons also, as a rule, do not employ graphic formulæ, but merely indicate the position of the radicles introduced, in the following manner:

"In the case of naphthalene, express the positions of the radicles introduced in place of hydrogen relatively to the carbon atoms common to the two 'rings,' and number the positions in the one ring 1, 2, 3, 4, and those in the other 1′, 2′, 3′, 4′, in the order shown by the annexed symbol:

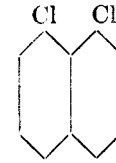


"The dichloronaphthalenes, for example, are spoken of simply as 1:2 dichloronaphthalene, or dichloronaphthalene [Cl:Cl=1:2, etc.,] thus:

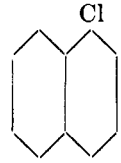
1:2 dichloronaphthalene=



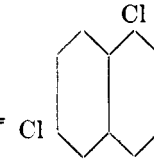
1:1′ dichloronaphthalene=



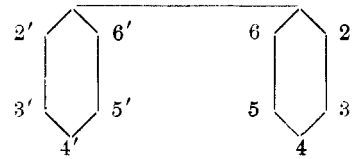
1:3 dichloronaphthalene



1:3′ dichloronaphthalene=



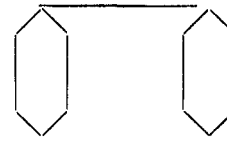
"*In the case of diphenyl*, indicate the position of the radicles relatively to the carbon atom of one C_6 group which is associated with the other C_6 group, and number the positions in the one group by the figures 2, 3, 4, 5, 6, and the corresponding positions in the other group by the figures 2′, 3′, 4′, 5′, 6′, as shown in the following symbol:



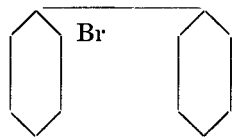
"Thus the mono-derivatives, the bromodiphenyls, for example, are represented as

Bromodiphenyl [Br=2]
" [Br=3]
" [Br=4]

and the two dibromodiphenyls

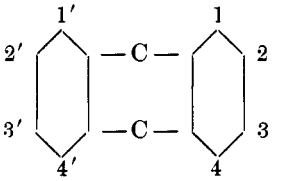


and



are respectively dibromodiphenyl [Br:Br=2:3] and dibromodiphenyl [Br:Br=2:6′].

"*In the case of anthracene* employ the following symbol, and indicate the position of the radicles relatively to the central C_2-group:



Examples:

Alizarine, $C_6H_4:C_2O_2:C_6H_2(OH)_2$[OH:OH=1:2]
Quinizarin, $C_6H_4:C_2O_2:C_6H_2(OH)_2$[OH:OH=1:4]
Anthraflavic Acid, $C_6H_3(OH):C_2O_2:C_6H_3(OH)$ [OH:OH=2:3′]
Purpurin, $C_6H_4:C_2O_2.C_6H(OH)_3$[OH:OH:OH=1:2:4]

"In speaking of compounds such as these, their constitution may be represented by the names

1:2	Dihydroxyanthraquinone	=Alizarin.
1:4	"	=Quinizarin.
2:3′	"	=Anthraflavic Acid.
1:2:4	Trihydroxyanthraquinone	=Purpurin.

"Always include the letters and figures indicating the constitution of derivatives of closed chain hydrocarbons in square brackets."